



Energy Division

Raychem Joints for Polymeric Insulated Cables 72.5 kV

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The elastomeric Raychem 72.5 kV joints are suitable for all polymeric cables and can accommodate various cross-bonding shield break and external grounding arrangements.

- Quick cable preparation
No need for insulation pencilling
- Simplified installation
No specialists required. A qualified medium-voltage jointer will be trained in one day.
- Pre-engineered wall thickness
All product dimensions are set and checked at the factory before the product is shipped to the field.
- Time savings
Due to short installation time outages are kept to a minimum in repair situations.
- High reliability
The combination of long experience and rigorous testing to international standards leads to high joint reliability.

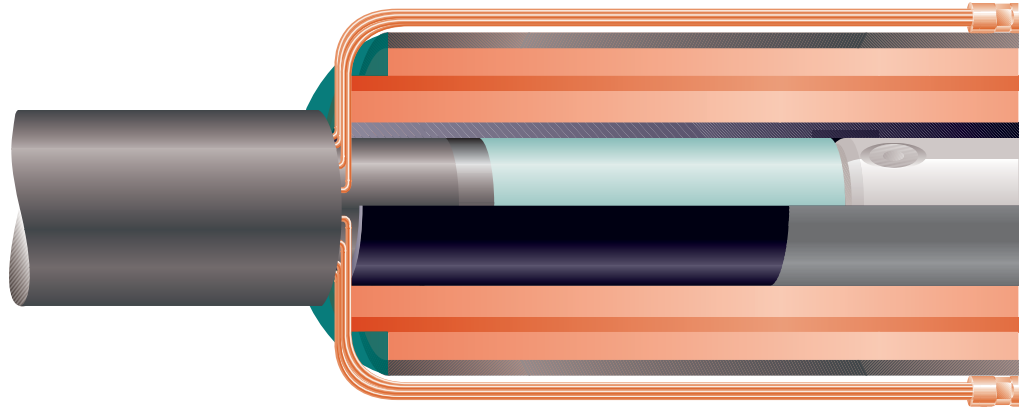
Designed for easy jointing

The Raychem joint design comprises of a connector that allows even large cross-sections to be jointed and two dual-wall, heat-shrinkable sleeves. A heavy-walled co-extrusion of two layers of red insulation forms the inner sleeve. The outer sleeve consists of a thick layer of red insulation co-extruded under a black outer conductive layer which acts as the joint screen.



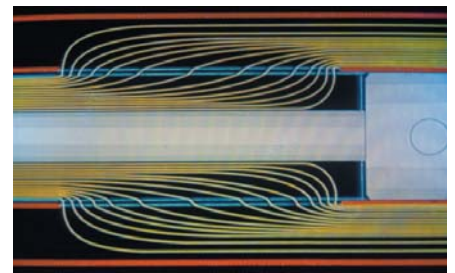
This is the kit ...

The set of pre-engineered components and the Raychem connector require no special installation tools. After placing the heat-shrinkable components over the cable end, the connector is installed by tightening the special bolts, which shear off cleanly when the correct contact force is reached. Each sleeve in turn is placed over the connector area and shrunk down. Copper shielding mesh and an adhesive-coated outer sleeve for water sealing then complete the joint.



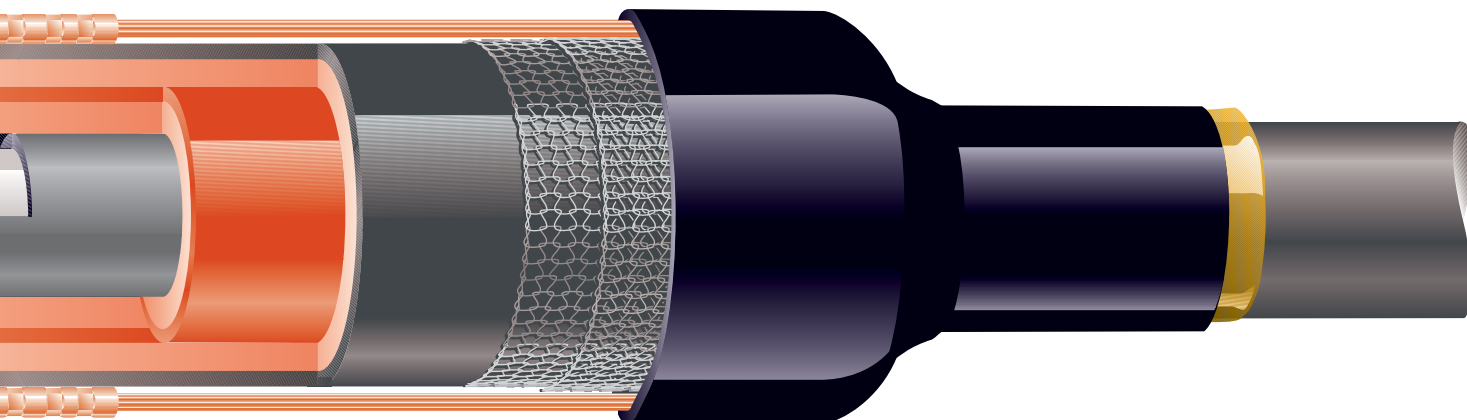
Controlled-torque connector

The connector design allows cables to be jointed without special tools, heat treatment or dressing/filing after installation. Shear-head bolts ensure a pre-engineered electrical connection. In developing this new connector, much effort was devoted to simplifying the installation steps. Consequently, the key reliability features are engineered into the connector, before it leaves the factory. The outside surface is already machined smooth. The shear-head bolts break off at a predetermined level below the outer surface of the connector, at a defined torque. This ensures the correct contact pressure is reached every time. Oxide-breaking and corrosion prevention is performed by the contact grease inside the connector body. The stable voltage drop provided by this concept has been demonstrated in field installations which closely follow the predictions of long-term load-cycling tests. Comprehensive qualification procedures like IEC 61238-1996 and ANSI 119.4 1993 prove the excellent long-term performance.



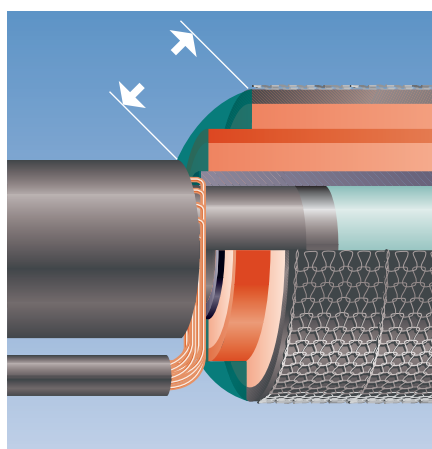
Electrical stress control

A material with stress adjusting characteristics is applied onto the connector and cable screen ends. This heat-shrinkable sleeve incorporates a conductive coating in the connector area which equalizes potential in the manner of a Faraday cage. It extends over the dielectric to accommodate possible insulation shrink-back.



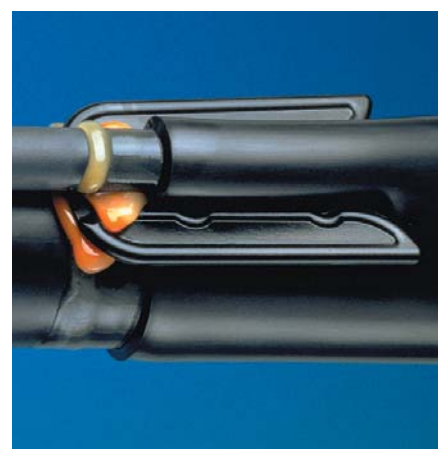
Elastomeric Technology

Two dual-wall, heat-shrinkable elastomeric sleeves are at the heart of the joint. Because of the unique elastomeric technology used in their manufacture, these dual-wall sleeves shrink rapidly and deliver pre-engineered, uniform layers of thick insulation. In each case the outer wall of the co-extruded sleeve is heat-shrinkable, while the inner layer is an elastomer held out in an expanded form by the bond to the outer layer. Application of heat to the outer wall causes it to shrink to a pre-determined diameter and simultaneously allows the inner layer to contract, conforming tightly to the joint. In two short steps the installer applies the required insulation thickness and joint screen. When the cable is in service the rubber-like characteristics of the insulation allow the joint to conform to the dimensional changes of the cable insulation during load cycling.



Cross-bonding/shield break

The use of heat-shrinkable sleeves for stress control, insulation, and screening provides a location for the shield break at the end of the joint. A mastic installed under the heat-shrinkable outer sleeve ensures high dielectric strength at this point. The cross-bond can be made without influencing the electrical field in the joint, and does not require any special additional components. Requirements according to IEC 60840:2004 Annex H and IEEE 404-2000 are fulfilled.



Outer sealing

The cable oversheath is replaced with a thick-wall heat-shrinkable insulating sleeve, which provides the required dielectric strength and is internally coated with a hot-melt adhesive. The heat of installation causes the adhesive to melt and flow to create an effective water seal and corrosion protection. Grounding leads are sealed by an adhesive coated clip.

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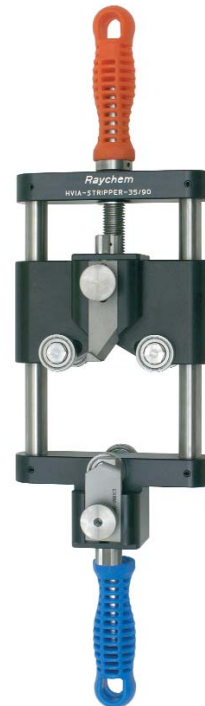
Technical data

Cable insulation diameter range	34-78 mm	4 sizes
Highest voltage for equipment	72.5 kV	
AC withstand	120 kV 100 kV	15 min 6 h
Basic impulse level	350 kV	
Max. continuous conductor operating temperature	90 °C	
Max. conductor emergency temperature	130 °C	
1 sec. short circuit temperature	250 °C	
Length	approx. 800 mm	
Weight	max 11 Kg	
Space required for assembly	2 m	

The joint has been subjected to tests in accordance to international standards e.g. IEC 60840, IEEE 404.

Stripping tool for XLPE cable:

Raychem's stripping tool, designed to remove both semi-conductive screen and dielectric, will help professional jointers to overcome this difficulty.



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